BUREAU OF INDIAN AFFAIRS

BIA Southwest Indian Polytechnic Institute (SIPI) Gymnasium Integrated Photovoltaic Roof Project, Albuquerque, New Mexico. The 70 kilowatt building integrated photovoltaic roofing system on SIPI's gymnasium offset its overall annual electricity consumption by an estimated 127 megawatt-hours saving $7,620 annually. This is the largest photovoltaic system in New Mexico. In addition, under the school's renewable energy curriculum, this new photovoltaic system allows the students to monitor its renewable electricity generation as well as the system's operations and maintenance.

BIA Southwest Indian Polytechnic Institute (SIPI) Administrative Building Photovoltaic System, Albuquerque, New Mexico. The 40 kilowatt PV system was recently installed using American Recovery and Reinvestment funding. This system will offset SIPI's purchased electricity by 72 megawatt-hours.

BIA **Nazlini Community School Fire Station**, Nazlini, Arizona, is a net zero energy building. With technical assistance provided by the National Renewable Energy Laboratory, the Nazlini Fire Station will optimize energy efficiency and utilize an on-site 10 kilowatt photovoltaic system and natural gas as its energy sources. Building commissioning, weather monitoring, photovoltaic electricity generation, and energy consumption will be monitored to assess building performance. If successful, the resulting net zero energy fire station design could be replicated at subsequent fire station sites.

> *Net Zero Energy Building - A building that produces as much energy as it uses, when measured annually at the site.*

In FY 2011, BIA will be installing multiple ground source heat pump systems at the following locations:

- Crownpoint Community School, New Mexico
- Loneman Day School, South Dakota
- Pueblo Pintado Community School, New Mexico
- Rough Rock Community School, Arizona
- Circle of Life School, Minnesota

January 2011

U.S. FISH AND WILDLIFE SERVICE

FWS Rapids Lake Education and Visitor Center, Minnesota Valley National Wildlife Refuge, Minnesota includes a 24-ton ground-source geothermal system, solar water heating system, high efficiency lighting, occupancy sensors and daylighting sensors, low-e glass, super insulated exterior envelope, waterless urinals, a "fire-proof" standing seam metal roof, cement board siding, and numerous other sustainable features

FWS Ohio River Islands NWR Administration Building and Visitor Contact Station, West Virginia**,** utilizes a ground source heat pump system which provides 27.3 Million BTUs of renewable energy to the facility each year, a 5 kilowatt photovoltaic system, and a solar water heating system.

FWS Bosque del Apache NWR, New Mexico installed 15 kilowatt photovoltaic system with ARRA funding. This system is expected to generate approximately 27 megawatt-hours of electricity annually.

FWS Cibola NWR, Arizona installed a 50 kilowatt photovoltaic system with ARRA funding. This system is expected to generate approximately 90 megawatt-hours of electricity annually.

FWS Boyer Chute NWR Maintenance Facility, Nebraska received ARRA funding to install an energy efficient 18-ton geothermal heating and air conditioning unit, insulation and a heated flooring system. This project will provide the refuge with long-term energy savings.

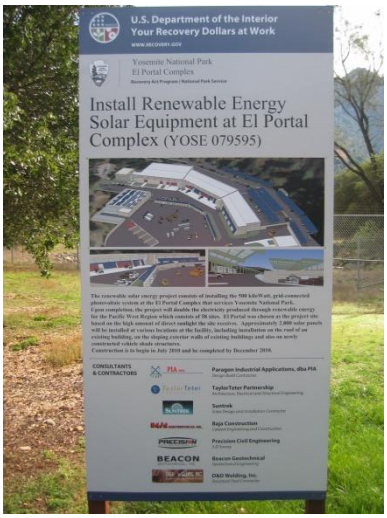
NATIONAL PARK SERVICE

NPS Denali National Park Eielson Visitor Center, Alaska completed the first Leadership in Energy and Environmental Design (LEED) Platinum building for the National Park Service and Alaska. Photovoltaic panels and a micro hydro system on a nearby stream provide 82 percent of the energy consumed by the building. The visitor center is a very low profile earth berm building that provides visitors with an unobstructed, intimate view of 20,320 foot high Mt. McKinley - North America's highest peak.

NPS American Memorial Park in Saipan, Northern Mariana Island installed a 37 kilowatt grid-connected photovoltaic array at the Visitors Center. This system will generate approximately 67 megawatt-hours of electricity annually. The grid-connected array will have the capability to send any excess electricity produced by the solar panels and not needed by the Visitors Center back into the island power network.

NPS Lake Mead National Recreation Area in Nevada completed the installation of a 60 kilowatt grid-tied photovoltaic system at the Warehouse Complex. This system will generate approximately 108 megawatt-hours of electricity annually. ARRA funding was used for this project.

NPS Yosemite National Park in California recently completed, December 2010, the largest grid-connected photovoltaic system in the National Park Service. This 539 kilowatt system will generate nearly 970 megawatt-hours of electricity annually. The solar panels are installed at the El Portal Maintenance Complex on the roofs of existing buildings and on newly constructed shade structures in which government vehicles will be parked under.



NPS Channel Island National Park, California recently completed the installation of a 10 kilowatt grid-connected photovoltaic system at the Park Headquarters.

NPS Santa Monica Mountains National Recreation Area, California is currently constructing a new dormitory which will be the National Park Services' first net-zero energy building. This building will feature a 32 kilowatt photovoltaic system and a ground source heat pump.

NPS Alcatraz Island Golden Gate National Recreation Area, California will complete a multi-phased installation of 285 kilowatt photovoltaic system to replace diesel generated power on the island. Phase 1 (188 kilowatts) is scheduled for completion in March 2011. Phase 2 (97 kilowatts) is scheduled for completion by the end of calendar year 2011. These systems will generate over 500 megawatt-hours of electricity annually.

January 2011

BUREAU OF LAND MANAGEMENT

BLM Cleveland-Lloyd Dinosaur Quarry Visitor Center in Utah installed a stand-alone 3.7 kilowatt photovoltaic system which will save $24,000 per year in fuel costs and reduce greenhouse gas emissions generated at the site by 99 percent.

BLM Escalante Science Center, Grand Staircase-Escalante National Monument, Utah installed a 7.5 kilowatt photovoltaic system which will generate 13 megawatt-hours of electricity annually. This building received BLM's first Leadership in Energy and Environmental Design (LEED) Gold certification.

BLM Rawlins Field Office in Wyoming is currently constructing a 100 kilowatt wind turbine as part of BLM's multi-phased energy savings performance contract. This system will generate 60 megawatt-hours of electricity annually.

U.S. GEOLOGICAL SURVEY

USGS Great Lakes Science Center in Ann Arbor, Michigan recently completed the installation of an innovative 70 ton geothermal heat pump hybrid system with variable frequency drives. Geothermal heat pumps use the energy stored in the ground for heating or cooling applications, providing low operating costs, as well as low maintenance costs.

USGS Florida Integrated Science Center in Gainesville, Florida recently completed the installation of a 5 kilowatt photovoltaic system as part of an energy savings performance contract. The PV system will generate 9 megawatt-hours of electricity annually.

USGS National Wildlife Health Center in Madison, Wisconsin is currently constructing a 60 kilowatt photovoltaic system which will generate 107 megawatt-hours of electricity annually. This project was completed using ARRA funding and an energy savings performance contract.

BUREAU OF RECLAMATION

BOR Lake Berryessa, California has incorporated multiple renewable energy systems at its facility. The installation of 2 photovoltaic systems [7.2 kilowatts and 5.1 kilowatts], a solar water heater at the dormitory, solar powered parking lights and buoy markers reduce on-site electrical demand. This allows an equal amount of electricity to be available for distribution to the electrical grid.